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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,236	09/08/2003	Gang Yu	UC0013 US NA	4110

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E I DU PONT DE NEMOURS AND COMPANY
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EXAMINER

SANTIAGO, MARICELI

ART UNIT	PAPER NUMBER
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2879

NOTIFICATION DATE	DELIVERY MODE
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12/26/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

Office Action Summary

Application No.

10/658,236

Applicant(s)

YU ET AL.

Examiner

Mariceli Santiago

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,10-13,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,10-13,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Receipt of the Amendment, filed on September 15, 2008, is acknowledged.

Cancellation of claims 2-4, 7-9 and 14-18 has been entered.

Claims 1, 5, 6, 10-13, 19 and 20 are pending in the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 5, 6, 10-13, 19 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant claims the determination of a range of thickness d_1 and d_2 to achieve a $L_{\text{background}}$ within a claimed percent value, however, how the thickness of d_1 and d_2 relates to the $L_{\text{background}}$, in order to achieve the claimed percentage, is not included in the claims or disclosed in the specification as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention. Moreover, the absent in the disclosure of a reasonable correlation between the claimed determination of thicknesses and the $L_{\text{background}}$ is considered evidence that at the time the application was filed, one skilled in the art would not have been taught how to make and/or use the full scope of the claimed invention without undue experimentation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, 6, 10-13, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ko (US 6,876,018).

Regarding claim 1, Ko discloses an organic electronic device comprising a first electrode (34, Fig. 4; 52, Fig. 6), a second electrode (38, Fig. 4; 56, Fig. 6) and an organic active layer (36, Fig. 4; 60, Fig. 6), wherein the first electrode lies on a opposite side of the organic active layer, compared to the second electrode, and at least one layer selected from the first electrode, the second electrode, a hole-transport layer, an electron-transport layer and the organic active having a thickness adjusted to achieve reduced $L_{\text{background}}$ (Column 2, lines 28-38). Ko fails to explicitly state that the reduced $L_{\text{background}}$ is 30% or less of incident ambient light, however, Ko discloses the adjustment (i.e., optimization) of the thickness of the organic layer and/or the transparent electrode in order to achieve a desired reduced ambient-light reflection, thus providing for a low $L_{\text{background}}$ (Column 2, lines 28-38). Accordingly, it is considered within the capabilities of one skilled in the art to optimize prior art conditions (i.e., the corresponding layers thicknesses within the display panel) in order to obtain a result-effective value (i.e., a $L_{\text{background}}$ within the claimed values) as an obvious matter of design engineering in view of Ko's teachings. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to optimize the corresponding layers thicknesses within the display panel as taught by Ko to achieve a $L_{\text{background}}$ within the claimed values, since optimization of prior art conditions is considered within the capabilities of one skilled in the art.

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In regards to the stated equations to determine the range thicknesses d_1 and d_2 to achieve the claimed low $L_{\text{background}}$, patentability of the claimed device is based on its structural difference over prior art devices, limitations in regards to the determination of the thickness are considered as part of an intermediate process from which optimum values can be obtained and they are not considered germane to the issue of patentability of the device itself. Ko discloses an organic electronic device comprising the claimed layers and further acknowledges optimization of the thickness of these layers in order to reduce the $L_{\text{background}}$, accordingly, Ko is considered to meet the structural limitations of the claim.

Regarding claim 5, Ko discloses an organic electronic device comprising an organic active layer, and a first electrode having a side opposite the organic active layer, wherein the first electrode comprises a first electrode layer lying at the side opposite the organic active layer and the first electrode layer has a thickness adjusted to achieve reduced $L_{\text{background}}$ (Column 2, lines 28-38). Ko fails to explicitly state that the reduced $L_{\text{background}}$ is 30% or less of incident ambient light, however, Ko discloses the adjustment (i.e., the optimization) of the thickness of the organic layer and/or the transparent electrode in order to achieve a desired reduced ambient-light reflection, thus providing for a low $L_{\text{background}}$ (Column 2, lines 28-38). Accordingly, it is considered within the capabilities of one skilled in the art to optimize prior art conditions (i.e., the corresponding layers thicknesses within the display panel) in order to obtain a result-effective value (i.e., a $L_{\text{background}}$ within the claimed values) as an obvious matter of design engineering in view of Ko's teachings. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to optimize the corresponding layers thicknesses within the display panel as taught by Ko to achieve a $L_{\text{background}}$ within the claimed values, since optimization of prior art conditions is considered within the capabilities of one skilled in the art.

Art Unit: 2879

In regards to the stated equations to determine the range thicknesses d_1 and d_2 to achieve the claimed low $L_{\text{background}}$, patentability of the claimed device is based on its structural difference over prior art devices, limitations in regards to the determination of the thickness are considered as part of an intermediate process from which optimum values can be obtained and they are not considered germane to the issue of patentability of the device itself. Ko discloses an organic electronic device comprising the claimed layers and further acknowledges optimization of the thickness of these layers in order to reduce the $L_{\text{background}}$, accordingly, Ko is considered to meet the structural limitations of the claim.

Regarding claim 6, Ko discloses an organic electronic device further comprising a second electrode (56, Fig. 6), wherein the organic active layer lies between the first electrode and the second electrode, a second electrode has a side opposite the organic active layer, and the second electrode comprises a second layer lying at the side opposite the organic active layer, and wherein the second electrode layer has a thickness adjusted to achieve reduced $L_{\text{background}}$ (Column 2, lines 28-38). Ko fails to explicitly state that the reduced $L_{\text{background}}$ is 30% or less of incident ambient light, however, Ko discloses the adjustment (i.e., the optimization) of the thickness the second transparent electrode in order to achieve a desired reduced ambient-light reflection, thus providing for a low $L_{\text{background}}$ (Column 2, lines 28-38). Accordingly, it is considered within the capabilities of one skilled in the art to optimize prior art conditions (i.e., the corresponding layers thicknesses within the display panel) in order to obtain a result-effective value (i.e., a $L_{\text{background}}$ within the claimed values) as an obvious matter of design engineering in view of Ko's teachings. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to optimize the corresponding layers thicknesses within the display panel as taught by Ko to achieve a $L_{\text{background}}$ within the claimed values, since optimization of prior art conditions is considered within the capabilities of one skilled in the art.

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Moreover, Ko discloses the second electrode made of ITO or IZO transparent material, accounting for a minimum ambient light reflection from the second electrode, thus, providing for a low $L_{\text{background}}$.

Regarding claim 10, Ko discloses an organic electronic device wherein an interfacial reflectivity is not greater than about 30 percent. The interfacial reflectivity is calculated as follow, given the refractive index of first electrode, ITO $\eta_x=1.95$, the refractive index of adjacent layer $\eta_y = 1.7$, the interfacial reflectivity being determined by $R = I_{\text{reflected}}/I_{\text{incident}} = [(\eta_x - \eta_y)/(\eta_x + \eta_y)]^2$, $R = 0.4\%$.

Regarding claims 11-13, Ko discloses an organic electronic device wherein the first electrode layer comprises a metal selected from a transition metal and an elemental metal (34, Column 3, lines 25-29; 52, Column 4, lines 25-35), wherein the metal is selected from a group consisting of Au, Cr, Si and Ta (52, Column 4, lines 25-35), and wherein the first electrode layer further comprises a oxide of the metal (34, Column 3, lines 25-29).

Regarding claims 19 and 20, Ko discloses an organic electronic device wherein the electronic device is a light-emitting display.

Response to Arguments

Applicant's arguments filed September 15, 2008 have been fully considered but they are not persuasive.

Applicant's contention that the prior art reference to Ko (US 6,876,018) does not present a precise, predictive determination of thickness values, or ranges of values, for at least one of the first electrode, the second electrode, the hole-transport layer, the electron-transport layer, and the organic active layer is not found persuasive. In the instant case, patentability of the product claim does not rely in a precise or predictive determination of the thickness value (which

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is considered an intermediate manufacture step), but in its structural difference over the prior art of record. Ko discloses substantially the same structural components as claimed in the instant application, and further teaches adjusting the layers thicknesses within the display panel to reduce ambient-light reflection. It is considered within the capabilities of one skilled in the art the optimization of prior art conditions (i.e., the corresponding layers thicknesses within the display panel) in order to obtain a result-effective value (i.e., a $L_{\text{background}}$ within the claimed values). Accordingly, the structural limitations and the corresponding property claimed in the instant application are considered to be obvious over the Ko's teachings. Applicant has failed to provide a concrete evidence of an obvious difference between the prior art and the claimed invention, or whether the claimed determination imparts any unexpected properties to the claimed product compared with that disclosed by the prior art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system,

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see <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mariceli Santiago/

Primary Examiner, Art Unit 2879